

REMARKS**I. Claim Changes**

Claim 1 has been amended to further define and distinguish the claimed invention from the prior art. The glass-ceramic panel has been limited to be transparent and colorless by changing "made of" to "consisting of". The same is true of the glass panel.

Some minor errors in the wording of claim 2 were corrected to provide antecedent basis for claim terms.

II. The Essential Features of the Invention

The applicants' claimed cooking unit comprises a glass-ceramic or glass panel that provides a cooking surface having a special combination of structural features. The claimed glass-ceramic or glass panel according to the invention is designed to include some protection for the top surface of the glass-ceramic or glass panel and to reduce the conspicuousness of dirt and the like on the top surface, while providing a color impression in as economical a manner as possible.

The cooking unit with the glass-ceramic or glass panel according to applicants' amended claim 1 has three essential features. First, the glass-ceramic or glass panel is transparent and colorless (see lines 2 and 3 of the pending claim 1 and note the change in amended claim 1) in order to avoid an expensive coloring of the corresponding glass melt. Second, the glass-ceramic or glass panel has a coating of temperature-resistant paint on its underside, which

is transparent to IR radiation and is solid or plain colored (claim 1 next to last line). Third, the upper side of the glass-ceramic or glass panel is provided with a full surface decorative coating (claim 1, lines 6 to 7) to reduce conspicuousness of dirt and the like on the upper surface of the glass-ceramic panel and to determine together with the IR permeable coating on the underside the color impression or color shade when viewed from the top.

While each of the three essential features noted above that are present in claim 1 is known in connection with other features in other known cooking units, it is only the combination of the three essential features, which characterizes the invention and provides unique advantages and benefits. For example, a glass-ceramic or glass panel that makes dirt and soiling less conspicuous and prevents viewing of the internal structure of the cooking unit can be made by applying selected paints for the full-surface decorative coating and the IR permeable coating.

Thus the claimed invention according to claim 1 is not obvious or anticipated by the prior art because the prior art does not teach or suggest the invention "as a whole". It is well established that the claimed invention must be considered "as a whole" (see M.P.E.P. 2141.02). In other words, it is respectfully suggested that the prior art does not teach or suggest the combination of features of applicants' currently pending claim 1. Although various prior art references might teach glass-ceramic or glass panels having one of the three essential features in combination with other different features, no single prior art reference discloses a cooking unit with this particular combination of features

claimed in claim 1. The individual rejections of the various claims are considered in more detail hereinbelow.

III. The Anticipation Rejection based on Heidari

Claim 1 was rejected as anticipated under 35 U.S.C. 102 (a) by Heidari, et al.

First, the article, plate or panel of Heidari, et al, is not limited to glass or glass-ceramic material. The terms "glass" or "glass-ceramic" are never used to describe any material for a layer of the structures shown in Figs. 1 to 3 of this reference that can be identified as equivalent to either the glass or glass-ceramic panel, the decorative coating or the IR permeable undercoating.

Fig. 2 of Heidari, et al, does show an object O being heated on a heating device 1'. The object O is placed on a layered heated plate or panel above an IR source. The IR source 4' is positioned below the heated plate, which has layers 6,5,3,10 (see paragraphs 0030 and 0031). Paragraphs 0030 and 0031 do not characterize any of these layers as being made of glass or glass-ceramic material. The only preferred material mentioned is the material IR permeable layer 10, SiC.

The Nefalit of plate 7 is not a glass-ceramic plate or panel within the meaning of that term in the glass, glass-ceramic and ceramic arts. A composite reinforced with ceramic fibers is no more a glass-ceramic material than a glass-fiber reinforced concrete is a glass.

Furthermore even if the Nefalite plate 7 is considered a glass-ceramic

material or the alternative ceramic Macor of paragraph 0028 is employed, the disclosures related to Fig. 2 of Heidari, et al, would still not anticipate applicants' claim 1. The Nefalite plate 7 does **not** have an IR permeable coating or layer **on its underside** as required by claim 1. The IR permeable layer 10 is above the Nefalite plate 7 in Fig. 2 and must be above the Nefalite plate 7 in all embodiments because the IR source is accommodated in a cavity in the Nefalite.

The disclosure of Heidari, et al, regarding other embodiments does mention preferred materials for the layers 6, 5 and 3. They are aluminum metal, aluminum dioxide and graphite respectively (see paragraph 0024). None of these materials is related to glass or glass-ceramic material. None of these materials could be made from glass or glass-ceramic material.

In addition, **none** of the layers 6, 5, 3 of the panel resting on the support 7 is disclosed to be "transparent and colorless" (see lines 2 and 3 of claim 1), which is an important characteristic of the glass or glass-ceramic panel according to the invention. The preferred layer 10 is IR permeable and made of SiC, but this layer is equivalent to the IR permeable coating. The remaining layers 6, 5 3 in the preferred embodiments of paragraph 0024 are aluminum, aluminum oxide and graphite. These materials are opaque and not transparent. This is teaching of the opposite from claim 1.

As explained in paragraph 0031 the layer 3 in the embodiment of Fig. 2 is made of a material that absorbs IR radiation and becomes uniformly heated. The layer 6 is a supporting layer for the heated object O. It also must be made of a material that readily conducts the heat from the heated layer 3 to the object O.

Thus metal is an ideal choice for the supporting layer 6. There is no reason to expect that in practice it would be other than the preferred aluminum of paragraph 0024. Neither of these layers 3 and 6 is disclosed as being "transparent and colorless".

Furthermore, although a disclosed species of a layer or layers anticipates a generically claimed layer or layers, in general a disclosed generically described layer or layers does not anticipate a species of the generally describe layer or layers. This is clearly explained in the Manual of Patent Examining Procedure, Chap. 21, M.P.E.P. 2131.02. In other words, a generic disclosure of a layer structure including an IR permeable underlayer, a heated layer for absorbing the IR radiation and a supporting and heat conducting layer does not anticipate a claim for an IR permeable underlayer, a glass or glass-ceramic middle plate and an upper decorative layer. This is particularly true when the examples of the layer materials disclosed in the reference are not colorless, transparent, glass or glass-ceramic.

In addition there is no decorative layer on the supporting plate 6 of Heidari, et al. Even broadly interpreting the term "supporting layer" one cannot arrive at the term "decorative layer". Clearly one skilled in the art would understand that not all "supporting layers" are "decorative".

In addition, there is no disclosure that the IR "coating" or layer 10 of Heidari is "colored" as claimed in the next to last line. This is an important feature of the invention because this layer contributes to the overall color impression that an observer from above has when looking at the glass-ceramic or glass panel.

For example, not the disclosure in the first paragraph on page 5 of the applicants' specification, which supports this interpretation of the significance of the colored IR permeable undercoating.

In order for a valid anticipation rejection of a claimed invention under 35 U.S.C.102 based on a single prior art reference, each and every element of the claimed invention must appear in the reference, either expressly or inherently. See M.P.E.P. 2131 and *In re Bond*, 15 U.S.P.Q. 2nd 1566 (Fed. Cir. 1990).

Summarizing there is **no disclosure**, either inherent or express, in Heidari, et al, of the following elements of claim 1:

(1) any layer or coating of any embodiment of Heidari, et al, that is arguably equivalent to a corresponding layer or coating of the glass or glass-ceramic panel of applicants' claim 1 (there is no disclosure in Heidari, et al, of a glass or glass-ceramic panel or plate, at least with an IR permeable underlayer);

(2) that any of the layers 6,5,3 of the plate supported on the support 7 in Fig. 2 of Heidari, et al, are "transparent and colorless" for visible radiation, as required by claim 1;

(3) that the IR permeable layer 10 is "colored" as required by claim 1; and

(4) any decorative layer; all supporting layers are not necessarily decorative.

Particularly the support 7 in Fig. 2 of Heidari, et al, is not equivalent to any element or layer recited in claim 1 because it is below the IR permeable coating or layer, which is the lowest layer or coating recited in claim 1; thus the materials of layer 7 are irrelevant to any of the materials recited in applicants' claim 1.

For the foregoing reasons withdrawal of the anticipation rejection of claim 1 under 35 U.S.C. 102 (a) by Heidari, et al, is respectfully requested.

IV. Is Claim 1 Obvious Under 35 U.S.C. 103 (a) over Heidari, et al?

Heidari, et al, contains teaching of the opposite from the claimed invention and thus cannot be used to reject the claimed invention as obvious under 35 U.S.C.103 (a).

The particular materials listed for layer 3 in paragraph 0027, graphite, metal and metal composite, are opaque. This is the opposite from "transparent and colorless". The same is true of the teaching of the aluminum and aluminum oxide for the upper layers in paragraph 0024 for e.g. layer 6. At least this would lead one skilled in the art away from the claimed invention of claim 1, which comprises a glass or glass-ceramic panel or plate that is transparent and colorless coated with a decorative coating on its upper surface and an IR permeable coating that is colored on its undersurface.

It is well established that a reference that contains teaching that would lead one away from the claimed invention cannot be used to reject the claimed invention as obvious under 35 U.S.C. 103 (a). For example, the Federal Circuit Court of Appeals has said:

"In determining whether such a suggestion [of obviousness] can fairly be gleaned from the prior art, ..It is indeed pertinent that these references teach against the present invention. Evidence that supports, rather than negates, patentability must be fairly considered." *In re Dow Chemical Co.*, 837 F.2nd 469,473, 5 U.S.P.Q.2d 1529, 1532 (Fed. Cir. 1988).

In addition, the heating unit of Heidari, et al, is from an entirely different field from the cooking appliance arts. Applicants' claim 1 claims a cooking unit, which is understood to mean a unit for cooking food and the like, not an industrial heating unit that is used to manufacture microstructures and nanostructures on silicon chips (see paragraph 0002). In fact, there is no disclosure that the supporting element 6 provides a "cooking surface". There is also no disclosure that the cooking surface has a plurality of cooking zones "heated with radiant heating elements 3". The cooking device of Heidari, et al, necessarily contains a heat distributing layer 3, which is not present in applicants' claimed article, which distributes the heat uniformly over the entire surface to uniformly heat the object O. This is the opposite from providing a cooking surface, which is only partially heated in certain cooking zones, as is the case in a cooking range (see lines 4 and 5 of claim 1).

Thus the heating unit of the reference and the cooking unit of the above-identified application are very different with different requirements. The modifications of the disclosures in Heidari, et al, are not suggested by other prior art references from the art of glass or glass-ceramic panels for cooking ranges or units because of those differences. There is a lack of motivation for an expert in the kind of heating units of Heidari, et al, to consult prior art references in the cooking range arts. For example, glass-ceramic or glass cooking panels for cooking ranges of the invention should be generally pleasing to look at with pleasing colors and with a decorative pattern that conceals dirt and soiling. They should be reasonably economical. The requirements for the application of

Heidari, et al, are entirely different. Hence Heidari, et al, does not have a decorative upper coating or layer and does not require a transparent colorless glass or glass-ceramic "layer" or panel.

For the foregoing reasons it is respectfully submitted that the amended claim 1 should not be rejected as obvious under 35 U.S.C. 103 (a) over Heidari, et al.

V. Obviousness Rejection based on Heidari, Hikino, Mitra and Gabelmann

Claims 2 to 6 were rejected under 35 U.S.C. 103 (a) as obvious over Heidari, et al, in view of Hikino, et al; Mitra, et al; and Gabelmann.

Heidari, et al, has been discussed above. The secondary references Hikino, et al; Mitra, et al and Gabelmann do disclose paints and coatings for glass and the like with resistance to high temperatures. Claims 2 to 6 do disclose that the colored IR permeable coating can be provided with a temperature-resistant paint.

The relation of the disclosures of Heidari, et al, to those of the claimed invention has been described above and it has been shown that Heidari, et al, contrary to the Office Action, does not disclose or suggest many of the features and limitations of claim 1. Thus the main issue here reduces to whether or not the secondary references suggest the modifications of the disclosures of Heidari, et al, that are necessary to arrive at the claimed invention.

Hikino, et al, disclose a refractory coating for a tubular IR source that comprises e.g. a ferric oxide film. This refractory coating transmits IR radiation

but absorbs visible and UV radiation. There is no disclosure, no hint or suggestion, that this coating should be used on the bottom of a cooking panel comprising glass or glass ceramic material. Also there is no limitation of the coating to be colored in the visible region and the spectra in Fig. 4 suggest that at best it is only weakly colored.

Mitra discloses a glass-ceramic cooking surface paint for making a decorative coating on the cooking surface, but there is no disclosure or suggestion of the colors mentioned in claim 2 or the different structures in the hot and cold regions in the sense of applicants' claim 3 or 5. Also this reference does not disclose the colored sol-gel coating of applicants' claim 6.

Gabelmann discloses an IR-reflecting temperature resistant coating 75 on the upper surface of a cooking panel to prevent overheating of the panel from radiation of a gas burner 71. Gabelmann, et al, does not disclose or suggest any of the critical individual features of applicants' amended main claim 1.

These references taken together would only suggest providing the decorative coatings of Mitra, et al, on the cooking surfaces disclosed in Mitra, et al. They would not suggest providing the decorative coating on the apparatus of Heidari, et al. There would be no motivation to provide the IR permeable coating of Hikino, et al, on the glass ceramic or glass panels of Mitra, et al, although it might be used in the heating apparatus of Heidari, et al.

The secondary references taken together do not suggest the modifications of the disclosures in Heidari, et al, which are necessary to arrive at the claimed invention as claimed by any of claims 1 to 6.

It is well established by many U. S. Court decisions that to reject a claimed invention under 35 U.S.C. 103 there must be some hint or suggestion in the prior art of the modifications of the disclosure in the cited prior art reference or references used to reject the claimed invention, which are necessary to arrive at the claimed invention. For example, the Court of Appeals for the Federal Circuit has said:

"Rather, to establish obviousness based on a combination of elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant...Even when obviousness is based on a single reference there must be a showing of a suggestion of motivation to modify the teachings of that reference.."*In re Kotzab*, 55 U.S.P.Q. 2nd 1313 (Fed. Cir. 2000). See also M.P.E.P. 2141

There is no suggestion in the art to provide the IR permeable coating of Hikino, et al, on the glass-ceramic or glass cooking panels of Mitra, et al.

There is no suggestion in the secondary references of the modifications of the disclosures in Heidari, et al, that are necessary to arrive at the invention as claimed in any of claims 1 to 6.

There is no suggestion in the secondary references that:

- (1) any layer or coating of any embodiment of Heidari, et al, which is arguably equivalent to a corresponding layer or coating of the claimed invention, should be made of glass or glass-ceramic material;
- (2) that any of the layers 6,5,3 of the plate supported on the support 7 in Fig. 2 of Heidari, et al, should be "transparent and colorless" for visible radiation,

as required by claim 1;

(3) that the IR permeable layer 10 fo Heidari, et al, should be "colored" as required by claim 1; and

(4) that the decorative coating is "full surface".

For the foregoing reasons withdrawal of the rejection of claims 2 to 6 under 35 U.S.C. 103 (a) as obvious over Heidari, et al; in view of Hikino, et al; Mitra, et al; and Gabelmann is respectfully requested.

Furthermore it is respectfully submitted that claim 1 should not be rejected under 35 U.S.C. 103 (a) as obvious over Heidari, et al; in view of Hikino, et al; Mitra, et al; and Gabelmann.

VI. Obviousness Rejection based on Heidari, Hikino, Mitra,
Gabelmann and Welch

Claims 7 to 13 were rejected as obvious under 35 U.S.C. 103 (a) over Heidari, et al, in view of Hikino, et al, Mitra, et al; and Gabelmann, and further in view of Welch.

The subject matter of all of these references, except for Welch, has been discussed in relation to amended claim 1 above.

Welch discloses a special temperature sensor provided on a glass-ceramic cook top surface to provide a temperature control signal.

However like the other secondary references Welch does not provide a motivation or suggestion of the modifications of the primary Heidari, et al, reference that are necessary to obtain the invention as claimed in applicants' amended claim 1.

Welch also does not suggest that:

(1) any layer or coating of any embodiment of Heidari, et al, which is arguably equivalent to a corresponding layer or coating of the claimed invention, should be made of glass or glass-ceramic material;

(2) that any of the layers 6,5,3 of the plate supported on the support 7 in Fig. 2 of Heidari, et al, should be "transparent and colorless" for visible radiation, as required by claim 1; and

(3) that the IR permeable layer 10 fo Heidari, et al, should be "colored" as required by claim 1.

Welch also does not disclose or suggest all the features and limitations in claims 7 to 13, such as the sol-gel paint (claim 9) or covering backing layer (claim 13).

For the foregoing reasons withdrawal of the rejection of claims 7 to 13 as obvious under 35 U.S.C. 103 (a) over Heidari, et al, in view of Hikino, et al, Mitra, et al; and Gabelmann, and further in view of Welch, is respectfully requested.

Furthermore it is respectfully submitted that claim 1 should not be rejected under 35 U.S.C. 103 (a) as obvious over Heidari, et al; in view of Hikino, et al; Mitra, et al; and Gabelmann, and further in view of Welch.

VII. Obviousness Rejection based on Heidari, McWilliams and Morsch

Claims 14 to 16 were rejected under 35 U.S.C. 103 (a) as obvious over Heidari, et al, in view of McWilliams, et al, and Morsch, et al.

Heidari, et al, as explained above, does not disclose substantially all the features of the claimed invention, except for metal and plastic foils. There are many other differences between the subject matter of amended claim 1 and Heidari, et al. The order of the layers, the color of the IR layer and the extent of the decorative coating, among other features, are important. Heidari, et al, does not disclose or suggest the invention "as a whole".

The secondary references, McWilliams, et al, and Morsch, et al, do not disclose an IR permeable foil directly applied to the underside of a glass-ceramic panel, which is the third critical feature of applicants' amended claim 1.

Thus McWilliams, et al, and Morsch, et al, do not suggest the modifications of the disclosures in Heidari, et al, that are required to obtain the claimed invention. For example these references do not suggest that:

- (1) any layer or coating of any embodiment of Heidari, et al, which is arguably equivalent to a corresponding layer or coating of the claimed invention, should be made of glass or glass-ceramic material;
- (2) that any of the layers 6,5,3 of the plate supported on the support 7 in Fig. 2 of Heidari, et al, should be "transparent and colorless" for visible radiation, as required by claim 1;
- (3) that the IR permeable layer 10 of Heidari, et al, should be "colored" as required by claim 1; and
- (4) that the decorative coating is "full surface".

For the foregoing reasons withdrawal of the rejection of claims 14 to 16

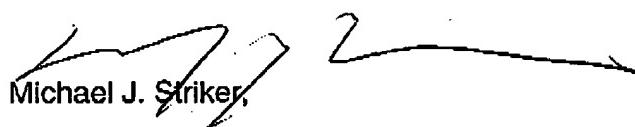
under 35 U.S.C. 103 (a) as obvious over Heidari, et al; in view of McWilliams, et al; and Morsch, et al; is respectfully requested.

Furthermore it is respectfully submitted that claim 1 should not be rejected under 35 U.S.C. 103 (a) as obvious over Heidari, et al; in view of in view of McWilliams, et al; and Morsch, et al.

Should the Examiner require or consider it advisable that the specification, claims and/or drawing be further amended or corrected in formal respects to put this case in condition for final allowance, then it is requested that such amendments or corrections be carried out by Examiner's Amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing the case to allowance, he or she is invited to telephone the undersigned at 1-631-549 4700.

In view of the foregoing, favorable allowance is respectfully solicited.

Respectfully submitted,


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